

CLAIMS

I claim:

1. An amphibious dredging vehicle, comprising:
 - (A) a floatable base having front and rear end portions and comprising:
 - (i) a first floatable pontoon having a first drive track mounted thereon;
 - (ii) a second floatable pontoon having a second drive track mounted thereon;
 - (iii) a link disposed between the first floatable pontoon and the second floatable pontoon and holding the first pontoon and the second pontoon in essentially parallel relation;
 - (B) a cutterhead dredge system attached to the base, the cutterhead dredge system comprising:
 - (i) a cutterhead mounted to the front end portion of the base;
 - (ii) a first directable discharge mounted to the rear end portion of the base;
 - (iii) a dredge pump in operative connection with the cutterhead and the first directable discharge so as to develop suction at the cutterhead and to propel material from the cutterhead to the first directable discharge;
 - (C) a first track-driving means disposed to transmit power to the first drive track;
 - (D) a second track-driving means disposed to transmit power to the second drive track;
 - (E) a dredge-pump-driving means disposed to transmit power to the dredge pump;
 - (F) a first directable-discharge-control means for aiming the first directable discharge.
2. An amphibious dredging vehicle according to claim 1, further comprising:
 - a first powerplant attached to the base; and
 - a hydraulic circuit 137 powered by the first powerplant.

3. An amphibious dredging vehicle according to claim 2, wherein the dredge-pump-driving means is a hydraulically driven motor powered by the hydraulic circuit.
4. An amphibious dredging vehicle according to claim 3, wherein the first track-driving means is a hydraulically driven motor powered by the hydraulic circuit and the second track-driving means is a hydraulically driven motor powered by the hydraulic circuit.
5. An amphibious dredging vehicle according to claim 2, wherein the first track-driving means is a hydraulically driven motor powered by the hydraulic circuit and the second track-driving means is a hydraulically driven motor powered by the hydraulic circuit.
6. An amphibious dredging vehicle according to claim 3, wherein the first track-driving means is a mechanical transmission powered by the first powerplant and the second track-driving means is a mechanical transmission powered by the first powerplant.
7. An amphibious dredging vehicle according to claim 2, wherein the first track-driving means is a mechanical transmission powered by the first powerplant and the second track-driving means is a mechanical transmission powered by the first powerplant.
8. An amphibious dredging vehicle according to claim 3, further comprising a second powerplant attached to the base and wherein the first track-driving means is a mechanical transmission powered by the second powerplant and the second track-driving means is a mechanical transmission powered by the second powerplant.

9. An amphibious dredging vehicle according to claim 2, further comprising a second powerplant attached to the base and wherein the first track-driving means is a mechanical transmission powered by the second powerplant and the second track-driving means is a mechanical transmission powered by the second powerplant.
10. An amphibious dredging vehicle according to claim 3, further comprising a second powerplant attached to the base and a third powerplant attached to the base and wherein the first track-driving means is a mechanical transmission powered by the second powerplant and the second track-driving means is a mechanical transmission powered by the third powerplant.
11. An amphibious dredging vehicle according to claim 2, further comprising a second powerplant attached to the base and a third powerplant attached to the base and wherein the first track-driving means is a mechanical transmission powered by the second powerplant and the second track-driving means is a mechanical transmission powered by the third powerplant.
12. An amphibious dredging vehicle according to claim 2, wherein the dredge-pump-driving means is a mechanical transmission powered by the first powerplant.
13. An amphibious dredging vehicle according to claim 5, wherein the dredge-pump-driving means is a mechanical transmission powered by the first powerplant.
14. An amphibious dredging vehicle according to claim 7, wherein the dredge-pump-driving means is a mechanical transmission powered by the first powerplant.
15. An amphibious dredging vehicle according to claim 9, wherein the dredge-pump-driving means is a mechanical transmission powered by the first powerplant.

16. An amphibious dredging vehicle according to claim 11, wherein the dredge-pump-driving means is a mechanical transmission powered by the first powerplant.
 17. An amphibious dredging vehicle according to claim 1, further comprising a second powerplant attached to the base and further comprising:
 - (I) an auxiliary propulsion system attached to the base and comprising:
 - (i) a water intake;
 - (ii) a water discharge;
 - (iii) a pump in operative connection with the water intake and the water discharge so as to develop suction at the water intake and to propel the water to the water discharge;
 - (iv) a water-discharge-control means for aiming the water discharge;
 - (v) a water-pump-driving means disposed to transmit power to the water pump.
 18. An amphibious dredging vehicle according to claim 2, further comprising:
 - (I) an auxiliary propulsion system attached to the base and comprising:
 - (i) a water intake;
 - (ii) a water discharge;
 - (iii) a pump in operative connection with the water intake and the water discharge so as to develop suction at the water intake and to propel the water to the water discharge;
 - (iv) a water-discharge-control means for aiming the water discharge;
 - (v) a water-pump-driving means disposed to transmit power to the water pump.
- wherein the water-pump-driving means is a mechanical transmission powered by the first powerplant.

19. An amphibious dredging vehicle according to claim 2, further comprising:
- (I) an auxiliary propulsion system attached to the base and comprising:
- (i) a water intake;
 - (ii) a water discharge;
 - (iii) a pump in operative connection with the water intake and the water discharge so as to develop suction at the water intake and to propel the water to the water discharge;
 - (iv) a water-discharge-control means for aiming the water discharge;
 - (v) a water-pump-driving means disposed to transmit power to the water pump.
- wherein the water-pump-driving means is a hydraulically driven motor powered by the hydraulic circuit.

20. An amphibious dredging vehicle according to claim 3, further comprising:
- (I) an auxiliary propulsion system attached to the base and comprising:
- (i) a water intake;
 - (ii) a water discharge;
 - (iii) a pump in operative connection with the water intake and the water discharge so as to develop suction at the water intake and to propel the water to the water discharge;
 - (iv) a water-discharge-control means for aiming the water discharge;
 - (v) a water-pump-driving means disposed to transmit power to the water pump.
- wherein the water-pump-driving means is a hydraulically driven motor powered by the hydraulic circuit.

21. An amphibious dredging vehicle according to claim 8, further comprising:

(I) an auxiliary propulsion system attached to the base and comprising:

(i) a water intake;

(ii) a water discharge;

(iii) a pump in operative connection with the water intake and the water discharge so as to develop suction at the water intake and to propel the water to the water discharge;

(iv) a water-discharge-control means for aiming the water discharge;

(v) a water-pump-driving means disposed to transmit power to the water pump.

wherein the water-pump-driving means is a mechanical transmission powered by the second powerplant.

22. An amphibious dredging vehicle according to claim 10, further comprising:

(I) an auxiliary propulsion system attached to the base and comprising:

(i) a water intake;

(ii) a water discharge;

(iii) a pump in operative connection with the water intake and the water discharge so as to develop suction at the water intake and to propel the water to the water discharge;

(iv) a water-discharge-control means for aiming the water discharge;

(v) a water-pump-driving means disposed to transmit power to the water pump.

wherein the water-pump-driving means is a mechanical transmission powered by the third powerplant.

23.

A system for building up land in a water-covered or water-surrounded area, comprising:

(A) a plurality of boom segments connected end-to-end in an essentially closed shape, each boom segment comprising:

(i) a floatable body having a first end portion, a second end portion, and a lower side portion;

(ii) a first body-connecting means, being attached to the first end portion of the body, for connecting together adjacent boom segments;

(iii) a second body-connecting means, being attached to the second end portion of the body, for connecting together adjacent boom segments;

(iv) a sieve panel having an upper portion, a lower portion, and first and second side portions, the sieve panel being attached along its upper portion to the body with the first and second end portions of the sieve panel being respectively aligned with the first and second end portions of the body and the sieve panel having a first sieve-panel connecting means, disposed upon the first side portion, for connecting together adjacent sieve panels, and a second sieve-panel connecting means, disposed upon the second side portion, for connecting together adjacent sieve panels, the sieve panel having a height greater than or approximately equal to the depth of the water in the water-covered area and the sieve panel being made from water-permeable, fine-meshed material;

wherein the first body-connecting means of each segment is connected to the second body-connecting means of an adjacent segment, and the first sieve-panel connecting means of each sieve panel is connected to the second sieve-panel connecting means of an adjacent sieve panel; and

(B) a sediment source depositing sediment inside the area substantially enclosed by the essentially closed shape formed by the boom segments, wherein the sediment source is an amphibious dredging vehicle, comprising:

(i) a floatable base having front and rear end portions and comprising:

- (a) a first floatable pontoon having a first drive track mounted thereon;
- (b) a second floatable pontoon having a second drive track mounted thereon;
- (c) a link disposed between the first floatable pontoon and the second floatable pontoon and holding the first pontoon and the second pontoon in essentially parallel relation;

(ii) a cutterhead dredge system attached to the base, the cutterhead dredge system comprising:

- (a) a cutterhead mounted to the front end portion of the base;
 - (b) a first directable discharge mounted to the rear end portion of the base;
 - (c) a dredge pump in operative connection with the cutterhead and the first directable discharge so as to develop suction at the cutterhead and to propel material from the cutterhead to the first directable discharge;
- (iii) a first track-driving means disposed to transmit power to the first drive track;
- (iv) a second track-driving means disposed to transmit power to the second drive track;

- (v) a dredge-pump-driving means disposed to transmit power to the dredge pump;
- (vi) a first directable-discharge-control means for aiming the first directable discharge.

24.

A system for building up sediment in a water-covered area, comprising:

- (A) a plurality of boom segments connected end-to-end in an essentially closed shape, each boom segment comprising:
 - (i) a floatable body having a first end portion, a second end portion, and a lower side portion;
 - (ii) a first body-connecting means attached to the first end portion of the body;
 - (iii) a second body-connecting means attached to the second end portion of the body;
 - (iv) a sieve panel having an upper portion, a lower portion, and first and second side portions, the sieve panel being attached along its upper portion to the body with the first and second end portions of the sieve panel being respectively aligned with the first and second end portions of the body and the sieve panel having a first sieve-panel connecting means disposed upon the first side portion and a second sieve-panel connecting means disposed upon the second side portion, the sieve panel having a height greater than or approximately equal to the depth of the water in the water-covered area and the sieve being made from water-permeable, fine-meshed material;
- wherein the first body-connecting means of each segment is connected to the second body-connecting means of an adjacent segment, and the first sieve-panel means for

connecting each sieve panel is connected to the second sieve-panel connecting means of an adjacent sieve panel;

(B) a sediment source depositing sediment inside the area substantially enclosed by the essentially closed shape formed by the boom segments, wherein the sediment source is an amphibious dredging vehicle, comprising:

(i) a floatable base having front and rear end portions and comprising:

- (a) a first floatable pontoon having a first drive track mounted thereon;
- (b) a second floatable pontoon having a second drive track mounted thereon;
- (c) a link disposed between the first floatable pontoon and the second floatable pontoon and holding the first pontoon and the second pontoon in essentially parallel relation;

(ii) a cutterhead dredge system attached to the base, the cutterhead dredge system comprising:

- (a) a cutterhead mounted to the front end portion of the base;
 - (b) a first directable discharge mounted to the rear end portion of the base;
 - (c) a dredge pump in operative connection with the cutterhead and the first directable discharge so as to develop suction at the cutterhead and to propel material from the cutterhead to the first directable discharge;
- (iii) a first track-driving means disposed to transmit power to the first drive track;

- (iv) a second track-driving means disposed to transmit power to the second drive track;
 - (v) a dredge-pump-driving means disposed to transmit power to the dredge pump;
 - (vi) a first directable-discharge-control means for aiming the first directable discharge; and
- (C) a wasteweer segment disposed so as to close the substantially closed shape formed by the floating boom segments, the wasteweer segment comprising:
- (i) an essentially orthogonal frame, the height of the frame being at least about equal to the depth of the water in the water-covered area, the frame having a first side portion, a second side portion, and a base having first and second end portions, the first side portion having a lower end portion attached to the first end portion of the base and a second side portion having a lower end portion attached to the second end portion of the base, the frame having disposed upon the top portion of its first side portion a first wasteweer-body connecting means and having disposed upon the top portion of its second side portion a second wasteweer-body connecting means, the first side portion having disposed thereon a first wasteweer-sieve connecting means, and the second side portion having disposed thereon a second wasteweer-sieve connecting means, and a barrier receiving means; the wasteweer segment being connected by the first wasteweer-body connecting means to the second body-connecting means of a first boom segment and being connected by the second wasteweer-body connecting means to the first body-

- connecting means of a second boom segment, the wasteweir segment being disposed so that it closes the substantially closed shape formed by the floating boom segments; and
- (ii) a barrier element adapted to be engaged by the barrier receiving means of the wasteweir segment.

25.

A method for building up land in a water-covered or water-surrounded area, comprising:

- (1) erecting a sediment-containment structure comprising
- (A) a plurality of boom segments connected end-to-end in an essentially closed shape, each boom segment comprising:
- (i) a floatable body having a first end portion, a second end portion, and a lower side portion;
- (ii) a first body-connecting means, being attached to the first end portion of the body, for connecting together adjacent boom segments;
- (iii) a second body-connecting means, being attached to the second end portion of the body, for connecting together adjacent boom segments;
- (iv) a sieve panel having an upper portion, a lower portion, and first and second side portions, the sieve panel being attached along its upper portion to the body with the first and second end portions of the sieve panel being respectively aligned with the first and second end portions of the body and the sieve panel having a first sieve-panel connecting means, disposed upon the first side portion, for connecting together adjacent sieve panels, and a second sieve-panel connecting means, disposed upon the second side portion, for connecting together adjacent sieve panels, the sieve panel having a height greater than or approximately equal to the depth of the water in the

water-covered area and the sieve panel being made from water-permeable, fine-meshed material;

wherein the first body-connecting means of each segment is connected to the second body-connecting means of an adjacent segment, and the first sieve-panel connecting means of each sieve panel is connected to the second sieve-panel connecting means of an adjacent sieve panel; and

(B) a sediment source depositing sediment inside the area substantially enclosed by the essentially closed shape formed by the boom segments, wherein the sediment source is an amphibious dredging vehicle, comprising:

(i) a floatable base having front and rear end portions and comprising:

- (a) a first floatable pontoon having a first drive track mounted thereon;
- (b) a second floatable pontoon having a second drive track mounted thereon;
- (c) a link disposed between the first floatable pontoon and the second floatable pontoon and holding the first pontoon and the second pontoon in essentially parallel relation;

(ii) a cutterhead dredge system attached to the base, the cutterhead dredge system comprising:

- (a) a cutterhead mounted to the front end portion of the base;
- (b) a first directable discharge mounted to the rear end portion of the base;

- (c) a dredge pump in operative connection with the cutterhead and the first directable discharge so as to develop suction at the cutterhead and to propel material from the cutterhead to the first directable discharge;
- (iii) a first track-driving means disposed to transmit power to the first drive track;
- (iv) a second track-driving means disposed to transmit power to the second drive track;
- (v) a dredge-pump-driving means disposed to transmit power to the dredge pump;
- (vi) a first directable-discharge-control means for aiming the first directable discharge; and

(2) introducing sediment into the substantially closed shape formed by the sediment-containment structure.

26.

A method for building up land in a water-covered or water-surrounded area, comprising:

- (1) erecting a sediment-containment structure comprising
 - (A) a plurality of boom segments connected end-to-end in an essentially closed shape, each boom segment comprising:
 - (i) a floatable body having a first end portion, a second end portion, and a lower side portion;
 - (ii) a first body-connecting means attached to the first end portion of the body;
 - (iii) a second body-connecting means attached to the second end portion of the body;

- (iv) a sieve panel having an upper portion, a lower portion, and first and second side portions, the sieve panel being attached along its upper portion to the body with the first and second end portions of the sieve panel being respectively aligned with the first and second end portions of the body and the sieve panel having a first sieve-panel connecting means disposed upon the first side portion and a second sieve-panel connecting means disposed upon the second side portion, the sieve panel having a height greater than or approximately equal to the depth of the water in the water-covered area and the sieve being made from water-permeable, fine-meshed material; wherein the first body-connecting means of each segment is connected to the second body-connecting means of an adjacent segment, and the first sieve-panel means for connecting each sieve panel is connected to the second sieve-panel connecting means of an adjacent sieve panel;
- (B) a sediment source depositing sediment inside the area substantially enclosed by the essentially closed shape formed by the boom segments, wherein the sediment source is an amphibious dredging vehicle, comprising:
- (i) a floatable base having front and rear end portions and comprising:
 - (a) a first floatable pontoon having a first drive track mounted thereon;
 - (b) a second floatable pontoon having a second drive track mounted thereon;
 - (c) a link disposed between the first floatable pontoon and the second floatable pontoon and holding the first pontoon and the second pontoon in essentially parallel relation;

(ii) a cutterhead dredge system attached to the base, the cutterhead dredge system comprising:

- (a) a cutterhead mounted to the front end portion of the base;
 - (b) a first directable discharge mounted to the rear end portion of the base;
 - (c) a dredge pump in operative connection with the cutterhead and the first directable discharge so as to develop suction at the cutterhead and to propel material from the cutterhead to the first directable discharge;
- (iii) a first track-driving means disposed to transmit power to the first drive track;
- (iv) a second track-driving means disposed to transmit power to the second drive track;
- (v) a dredge-pump-driving means disposed to transmit power to the dredge pump;
- (vi) a first directable-discharge-control means for aiming the first directable discharge; and

(C) a wasteweer segment disposed so as to close the substantially closed shape formed by the floating boom segments, the wasteweer segment comprising:

- (i) an essentially orthogonal frame, the height of the frame being at least about equal to the depth of the water in the water-covered area, the frame having a first side portion, a second side portion, and a base having first and second end portions, the first side portion having a lower end portion attached to the first end portion of the base and a second side portion having a lower end portion attached to the second end portion of the base, the frame having disposed upon the top portion of its first side portion a first

wasteweir-body connecting means and having disposed upon the top portion of its second side portion a second wasteweir-body connecting means, the first side portion having disposed thereon a first wasteweir-sieve connecting means, and the second side portion having disposed thereon a second wasteweir-sieve connecting means, and a barrier receiving means; the wasteweir segment being connected by the first wasteweir-body connecting means to the second body-connecting means of a first boom segment and being connected by the second wasteweir-body connecting means to the first body-connecting means of a second boom segment, the wasteweir segment being disposed so that it closes the substantially closed shape formed by the floating boom segments; and

(ii) a barrier element adapted to be engaged by the barrier receiving means of the wasteweir segment; and

(2) introducing sediment into the substantially closed shape formed by the sediment-containment structure.